bio-protocol Preprint

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Serological analysis

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An abbreviated version of this protocol was published in Science Translational Medicine in Jan 2021

IgA dominates the early neutralizing antibody response to SARS-CoV-2

DOI: 10.1126/scitranslmed.abd2223

Detailed protocol

SARS-CoV-2 specific IgA, IgM and IgG antibodies were measured in 214 serum samples from 132 patients with The Maverick ™ SARS-CoV-2 Multi-Antigen Serology Panel (Genalyte Inc. USA) according to the manufacturer's instructions (please find enclosed reagents datasheet). The Maverick ™ SARS-CoV-2 Multi-Antigen Serology Panel (Genalyte Inc) is designed to detect antibodies to five SARS-CoV-2 antigens: nucleocapsid, Spike S1 RBD, Spike S1S2, Spike S2 and Spike S1, with in a multiplex format based on photonic ring resonance technology (18, 19). This automated system detects and measures with good reproducibility (Figure S3) changes in resonance when antibodies bind to their respective antigens on the chip. Combined IgG and IgM antibodies showed 91% sensitivity and 98% specificity. Briefly, 10 µl of each serum sample was added to a sample well plate array containing required diluents and buffers, and the plate and chip were loaded in the instrument for chip equilibration with the diluent buffer to measure baseline resonance. The serum sample is then charged over the chip to bind specific antibodies to antigens present on the chip. The chip is then washed to remove lowaffinity binders, and specific antibodies are detected with anti-IgG, -IgA or -IgM secondary antibodies. 43 sera collected before December 2019 were analyzed to calculate cut-off values. Positivity was defined as results above the 99th percentile.

Related files

EUA202315 01030ART-01 IFU FDA FINAL.pdf

How to cite:（Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used）

1. Miyara, M. and Sterlin, D. (2021). Serological analysis. Bio-protocol Preprint. bio-protocol.org/prep961.
2. Sterlin, D., Mathian, A., Miyara, M., Mohr, A., Anna, F., Claër, L., Quentric, P., Fadlallah, J., Devilliers, H., Ghillani, P., Gunn, C., Hockett, R., Mudumba, S., Guihot, A., Luyt, C., Mayaux, J., Beurton, A., Fourati, S., Bruel, T., Schwartz, O., Lacorte, J., Yssel, H., Parizot, C., Dorgham, K., Charneau, P., Amoura, Z. and Gorochov, G.(2021). IgA dominates the early neutralizing antibody response to SARS-CoV-2. Science Translational Medicine 13(577). DOI: 10.1126/scitranslmed.abd2223

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